es_realizer_object_directory[11,40]

ABS: Realizer **es_realizer**

STM: es_realizer_wf

ABS: Rnone() **Rnone**

STM: Rnone_wf

ABS: $left \oplus right$ **Rplus**

STM: Rplus_wf

ABS: Rinit(loc;T;x;v) **Rinit**

STM: Rinit_wf

ABS: Rframe(loc;T;x;L) **Rframe**

STM: Rframe_wf

ABS: Rsframe(lnk;tag;L) **Rsframe**

STM: Rsframe_wf

ABS: Reffect(loc;ds;knd;T;x;f) **Reffect**

STM: Reffect_wf

ABS: Rsends(ds;knd;T;l;dt;g) **Rsends**

STM: Rsends_wf

ABS: Rpre(loc;ds;a;p;P) **Rpre**

STM: Rpre_wf

ABS: Raframe(loc;k;L) **Raframe**

STM: Raframe_wf

ABS: Rbframe(loc;k;L) **Rbframe**

STM: Rbframe_wf

ABS: Rrframe(loc;x;L) **Rrframe**

STM: Rrframe_wf

ABS: case x_1 of
    Rnone => $none$

1

Rplus(*left*,*right*)=>*rec$_1$,rec$_2$.plus(left;right;rec$_1$;rec$_2$*)
Rinit(*loc,T,x,v*)=> *init(loc;T;x;v)*
Rframe(*loc,T,x,L*)=> *frame(loc;T;x;L)*
Rsframe(*lnk,tag,L*)=> *sframe(lnk;tag;L)*
Reffect(*loc,ds,knd,T,x,f*)=> *effect(loc;ds;knd;T;x;f)*
Rsends(*ds,knd,T,l,dt,g*)=> *sends(ds;knd;T;l;dt;g)*
Rpre(*loc,ds,a,p,P*)=> *pre(loc;ds;a;p;P)*
Rkframe(*loc,k,L*)=> *aframe(loc;k;L)*
Rksframe(*loc,k,L*)=> *bframe(loc;k;L)*
Rrframe(*loc,x,L*)=> *rframe(loc;x;L)*

es_realizer_ind

STM: es_realizer_ind_wf

STM: es_realizer-induction

ABS: es_realizer_ind_Rnone{es_realizer_ind_Rnone_compseq_tag_def:ObjectId}
$\qquad$ (v_{11},v_{12},v_{13}.*rframe*(v_{11};v_{12};v_{13});
$\qquad$ v_{21},v_{22},v_{23}.*bframe*(v_{21};v_{22};v_{23});
$\qquad$ v_{31},v_{32},v_{33}.*aframe*(v_{31};v_{32};v_{33});
$\qquad$ v_{41},v_{42},v_{43},v_{44},v_{45}.*pre*(v_{41};v_{42};v_{43};v_{44};v_{45});
$\qquad$ v_{51},v_{52},v_{53},v_{54},v_{55},v_{56}.*sends*(v_{51};v_{52};v_{53};v_{54};v_{55};v_{56});
$\qquad$ v_{61},v_{62},v_{63},v_{64},v_{65},v_{66}.*effect*(v_{61};v_{62};v_{63};v_{64};v_{65};v_{66});
$\qquad$ v_{71},v_{72},v_{73}.*sframe*(v_{71};v_{72};v_{73});
$\qquad$ v_{81},v_{82},v_{83},v_{84}.*frame*(v_{81};v_{82};v_{83};v_{84});
$\qquad$ v_{91},v_{92},v_{93},v_{94}.*init*(v_{91};v_{92};v_{93};v_{94});
$\qquad$ v_{101},v_{102},v_{103},v_{104}.*plus*(v_{101};v_{102};v_{103};v_{104});
$\qquad$ *none*)

es_realizer_ind_Rnone_compseq_tag_def

ABS: es_realizer_ind_Rplus{es_realizer_ind_Rplus_compseq_tag_def:ObjectId}
$\qquad$ (v_{11},v_{12},v_{13}.*rframe*(v_{11};v_{12};v_{13});
$\qquad$ v_{21},v_{22},v_{23}.*bframe*(v_{21};v_{22};v_{23});
$\qquad$ v_{31},v_{32},v_{33}.*aframe*(v_{31};v_{32};v_{33});
$\qquad$ v_{41},v_{42},v_{43},v_{44},v_{45}.*pre*(v_{41};v_{42};v_{43};v_{44};v_{45});
$\qquad$ v_{51},v_{52},v_{53},v_{54},v_{55},v_{56}.*sends*(v_{51};v_{52};v_{53};v_{54};v_{55};v_{56});
$\qquad$ v_{61},v_{62},v_{63},v_{64},v_{65},v_{66}.*effect*(v_{61};v_{62};v_{63};v_{64};v_{65};v_{66});
$\qquad$ v_{71},v_{72},v_{73}.*sframe*(v_{71};v_{72};v_{73});
$\qquad$ v_{81},v_{82},v_{83},v_{84}.*frame*(v_{81};v_{82};v_{83};v_{84});
$\qquad$ v_{91},v_{92},v_{93},v_{94}.*init*(v_{91};v_{92};v_{93};v_{94});
$\qquad$ v_{101},v_{102},v_{103},v_{104}.*plus*(v_{101};v_{102};v_{103};v_{104});
$\qquad$ *none*;

right;
left)

es_realizer_ind_Rplus_compseq_tag_def

ABS: es_realizer_ind_Rinit{es_realizer_ind_Rinit_compseq_tag_def:ObjectId}

$(v_{11},v_{12},v_{13}.rframe(v_{11};v_{12};v_{13});$
$v_{21},v_{22},v_{23}.bframe(v_{21};v_{22};v_{23});$
$v_{31},v_{32},v_{33}.aframe(v_{31};v_{32};v_{33});$
$v_{41},v_{42},v_{43},v_{44},v_{45}.pre(v_{41};v_{42};v_{43};v_{44};v_{45});$
$v_{51},v_{52},v_{53},v_{54},v_{55},v_{56}.sends(v_{51};v_{52};v_{53};v_{54};v_{55};v_{56});$
$v_{61},v_{62},v_{63},v_{64},v_{65},v_{66}.effect(v_{61};v_{62};v_{63};v_{64};v_{65};v_{66});$
$v_{71},v_{72},v_{73}.sframe(v_{71};v_{72};v_{73});$
$v_{81},v_{82},v_{83},v_{84}.frame(v_{81};v_{82};v_{83};v_{84});$
$v_{91},v_{92},v_{93},v_{94}.init(v_{91};v_{92};v_{93};v_{94});$
$v_{101},v_{102},v_{103},v_{104}.plus(v_{101};v_{102};v_{103};v_{104});$
none;
v;
x;
T;
loc)

es_realizer_ind_Rinit_compseq_tag_def

ABS: es_realizer_ind_Rframe{es_realizer_ind_Rframe_compseq_tag_def:ObjectId}

$(v_{11},v_{12},v_{13}.rframe(v_{11};v_{12};v_{13});$
$v_{21},v_{22},v_{23}.bframe(v_{21};v_{22};v_{23});$
$v_{31},v_{32},v_{33}.aframe(v_{31};v_{32};v_{33});$
$v_{41},v_{42},v_{43},v_{44},v_{45}.pre(v_{41};v_{42};v_{43};v_{44};v_{45});$
$v_{51},v_{52},v_{53},v_{54},v_{55},v_{56}.sends(v_{51};v_{52};v_{53};v_{54};v_{55};v_{56});$
$v_{61},v_{62},v_{63},v_{64},v_{65},v_{66}.effect(v_{61};v_{62};v_{63};v_{64};v_{65};v_{66});$
$v_{71},v_{72},v_{73}.sframe(v_{71};v_{72};v_{73});$
$v_{81},v_{82},v_{83},v_{84}.frame(v_{81};v_{82};v_{83};v_{84});$
$v_{91},v_{92},v_{93},v_{94}.init(v_{91};v_{92};v_{93};v_{94});$
$v_{101},v_{102},v_{103},v_{104}.plus(v_{101};v_{102};v_{103};v_{104});$
none;
L;
x;
T;
loc)

es_realizer_ind_Rframe_compseq_tag_def

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ABS: es_realizer_ind_Rsframe{es_realizer_ind_Rsframe_compseq_tag_def:ObjectId}

$(v_{11},v_{12},v_{13}.rframe(v_{11};v_{12};v_{13});$
$v_{21},v_{22},v_{23}.bframe(v_{21};v_{22};v_{23});$
$v_{31},v_{32},v_{33}.aframe(v_{31};v_{32};v_{33});$
$v_{41},v_{42},v_{43},v_{44},v_{45}.pre(v_{41};v_{42};v_{43};v_{44};v_{45});$
$v_{51},v_{52},v_{53},v_{54},v_{55},v_{56}.sends(v_{51};v_{52};v_{53};v_{54};v_{55};v_{56});$
$v_{61},v_{62},v_{63},v_{64},v_{65},v_{66}.effect(v_{61};v_{62};v_{63};v_{64};v_{65};v_{66});$
$v_{71},v_{72},v_{73}.sframe(v_{71};v_{72};v_{73});$
$v_{81},v_{82},v_{83},v_{84}.frame(v_{81};v_{82};v_{83};v_{84});$
$v_{91},v_{92},v_{93},v_{94}.init(v_{91};v_{92};v_{93};v_{94});$
$v_{101},v_{102},v_{103},v_{104}.plus(v_{101};v_{102};v_{103};v_{104});$
$none;$
$L;$
$tag;$
$lnk)$

es_realizer_ind_Rsframe_compseq_tag_def

ABS: es_realizer_ind_Reffect{es_realizer_ind_Reffect_compseq_tag_def:ObjectId}

$(v_{11},v_{12},v_{13}.rframe(v_{11};v_{12};v_{13});$
$v_{21},v_{22},v_{23}.bframe(v_{21};v_{22};v_{23});$
$v_{31},v_{32},v_{33}.aframe(v_{31};v_{32};v_{33});$
$v_{41},v_{42},v_{43},v_{44},v_{45}.pre(v_{41};v_{42};v_{43};v_{44};v_{45});$
$v_{51},v_{52},v_{53},v_{54},v_{55},v_{56}.sends(v_{51};v_{52};v_{53};v_{54};v_{55};v_{56});$
$v_{61},v_{62},v_{63},v_{64},v_{65},v_{66}.effect(v_{61};v_{62};v_{63};v_{64};v_{65};v_{66});$
$v_{71},v_{72},v_{73}.sframe(v_{71};v_{72};v_{73});$
$v_{81},v_{82},v_{83},v_{84}.frame(v_{81};v_{82};v_{83};v_{84});$
$v_{91},v_{92},v_{93},v_{94}.init(v_{91};v_{92};v_{93};v_{94});$
$v_{101},v_{102},v_{103},v_{104}.plus(v_{101};v_{102};v_{103};v_{104});$
$none;$
$f;$
$x;$
$T;$
$knd;$
$ds;$
$loc)$

es_realizer_ind_Reffect_compseq_tag_def

ABS: es_realizer_ind_Rsends{es_realizer_ind_Rsends_compseq_tag_def:ObjectId}

$(v_{11},v_{12},v_{13}.rframe(v_{11};v_{12};v_{13});$
$v_{21},v_{22},v_{23}.bframe(v_{21};v_{22};v_{23});$
$v_{31},v_{32},v_{33}.aframe(v_{31};v_{32};v_{33});$
$v_{41},v_{42},v_{43},v_{44},v_{45}.pre(v_{41};v_{42};v_{43};v_{44};v_{45});$

$v_{51},v_{52},v_{53},v_{54},v_{55},v_{56}.sends(v_{51};v_{52};v_{53};v_{54};v_{55};v_{56});$
$v_{61},v_{62},v_{63},v_{64},v_{65},v_{66}.effect(v_{61};v_{62};v_{63};v_{64};v_{65};v_{66});$
$v_{71},v_{72},v_{73}.sframe(v_{71};v_{72};v_{73});$
$v_{81},v_{82},v_{83},v_{84}.frame(v_{81};v_{82};v_{83};v_{84});$
$v_{91},v_{92},v_{93},v_{94}.init(v_{91};v_{92};v_{93};v_{94});$
$v_{101},v_{102},v_{103},v_{104}.plus(v_{101};v_{102};v_{103};v_{104});$
$none;$
$g;$
$dt;$
$l;$
$T;$
$knd;$
$ds)$

es_realizer_ind_Rsends_compseq_tag_def

ABS: es_realizer_ind_Rpre{es_realizer_ind_Rpre_compseq_tag_def:ObjectId}
$(v_{11},v_{12},v_{13}.rframe(v_{11};v_{12};v_{13});$
$v_{21},v_{22},v_{23}.bframe(v_{21};v_{22};v_{23});$
$v_{31},v_{32},v_{33}.aframe(v_{31};v_{32};v_{33});$
$v_{41},v_{42},v_{43},v_{44},v_{45}.pre(v_{41};v_{42};v_{43};v_{44};v_{45});$
$v_{51},v_{52},v_{53},v_{54},v_{55},v_{56}.sends(v_{51};v_{52};v_{53};v_{54};v_{55};v_{56});$
$v_{61},v_{62},v_{63},v_{64},v_{65},v_{66}.effect(v_{61};v_{62};v_{63};v_{64};v_{65};v_{66});$
$v_{71},v_{72},v_{73}.sframe(v_{71};v_{72};v_{73});$
$v_{81},v_{82},v_{83},v_{84}.frame(v_{81};v_{82};v_{83};v_{84});$
$v_{91},v_{92},v_{93},v_{94}.init(v_{91};v_{92};v_{93};v_{94});$
$v_{101},v_{102},v_{103},v_{104}.plus(v_{101};v_{102};v_{103};v_{104});$
$none;$
$P;$
$p;$
$a;$
$ds;$
$loc)$

es_realizer_ind_Rpre_compseq_tag_def

ABS: es_realizer_ind_Raframe{es_realizer_ind_Raframe_compseq_tag_def:ObjectId}
$(v_{11},v_{12},v_{13}.rframe(v_{11};v_{12};v_{13});$
$v_{21},v_{22},v_{23}.bframe(v_{21};v_{22};v_{23});$
$v_{31},v_{32},v_{33}.aframe(v_{31};v_{32};v_{33});$
$v_{41},v_{42},v_{43},v_{44},v_{45}.pre(v_{41};v_{42};v_{43};v_{44};v_{45});$
$v_{51},v_{52},v_{53},v_{54},v_{55},v_{56}.sends(v_{51};v_{52};v_{53};v_{54};v_{55};v_{56});$
$v_{61},v_{62},v_{63},v_{64},v_{65},v_{66}.effect(v_{61};v_{62};v_{63};v_{64};v_{65};v_{66});$
$v_{71},v_{72},v_{73}.sframe(v_{71};v_{72};v_{73});$

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$v_{81}, v_{82}, v_{83}, v_{84}.\, frame(v_{81}; v_{82}; v_{83}; v_{84});$
$v_{91}, v_{92}, v_{93}, v_{94}.\, init(v_{91}; v_{92}; v_{93}; v_{94});$
$v_{101}, v_{102}, v_{103}, v_{104}.\, plus(v_{101}; v_{102}; v_{103}; v_{104});$
$none;$
$L;$
$k;$
$loc)$

es_realizer_ind_Raframe_compseq_tag_def

ABS: es_realizer_ind_Rbframe{es_realizer_ind_Rbframe_compseq_tag_def:ObjectId}
$(v_{11}, v_{12}, v_{13}.\, rframe(v_{11}; v_{12}; v_{13});$
$v_{21}, v_{22}, v_{23}.\, bframe(v_{21}; v_{22}; v_{23});$
$v_{31}, v_{32}, v_{33}.\, aframe(v_{31}; v_{32}; v_{33});$
$v_{41}, v_{42}, v_{43}, v_{44}, v_{45}.\, pre(v_{41}; v_{42}; v_{43}; v_{44}; v_{45});$
$v_{51}, v_{52}, v_{53}, v_{54}, v_{55}, v_{56}.\, sends(v_{51}; v_{52}; v_{53}; v_{54}; v_{55}; v_{56});$
$v_{61}, v_{62}, v_{63}, v_{64}, v_{65}, v_{66}.\, effect(v_{61}; v_{62}; v_{63}; v_{64}; v_{65}; v_{66});$
$v_{71}, v_{72}, v_{73}.\, sframe(v_{71}; v_{72}; v_{73});$
$v_{81}, v_{82}, v_{83}, v_{84}.\, frame(v_{81}; v_{82}; v_{83}; v_{84});$
$v_{91}, v_{92}, v_{93}, v_{94}.\, init(v_{91}; v_{92}; v_{93}; v_{94});$
$v_{101}, v_{102}, v_{103}, v_{104}.\, plus(v_{101}; v_{102}; v_{103}; v_{104});$
$none;$
$L;$
$k;$
$loc)$

es_realizer_ind_Rbframe_compseq_tag_def

ABS: es_realizer_ind_Rrframe{es_realizer_ind_Rrframe_compseq_tag_def:ObjectId}
$(v_{11}, v_{12}, v_{13}.\, rframe(v_{11}; v_{12}; v_{13});$
$v_{21}, v_{22}, v_{23}.\, bframe(v_{21}; v_{22}; v_{23});$
$v_{31}, v_{32}, v_{33}.\, aframe(v_{31}; v_{32}; v_{33});$
$v_{41}, v_{42}, v_{43}, v_{44}, v_{45}.\, pre(v_{41}; v_{42}; v_{43}; v_{44}; v_{45});$
$v_{51}, v_{52}, v_{53}, v_{54}, v_{55}, v_{56}.\, sends(v_{51}; v_{52}; v_{53}; v_{54}; v_{55}; v_{56});$
$v_{61}, v_{62}, v_{63}, v_{64}, v_{65}, v_{66}.\, effect(v_{61}; v_{62}; v_{63}; v_{64}; v_{65}; v_{66});$
$v_{71}, v_{72}, v_{73}.\, sframe(v_{71}; v_{72}; v_{73});$
$v_{81}, v_{82}, v_{83}, v_{84}.\, frame(v_{81}; v_{82}; v_{83}; v_{84});$
$v_{91}, v_{92}, v_{93}, v_{94}.\, init(v_{91}; v_{92}; v_{93}; v_{94});$
$v_{101}, v_{102}, v_{103}, v_{104}.\, plus(v_{101}; v_{102}; v_{103}; v_{104});$
$none;$
$L;$
$x;$
$loc)$

es_realizer_ind_Rrframe_compseq_tag_def

ABS: Rnone?(x_1) **Rnone?**

STM: Rnone?_wf

ABS: Rplus?(x_1) **Rplus?**

STM: Rplus?_wf

ABS: Rplus-left(x_1) **Rplus-left**

STM: Rplus-left_wf

ABS: Rplus-right(x_1) **Rplus-right**

STM: Rplus-right_wf

ABS: Rinit?(x_1) **Rinit?**

STM: Rinit?_wf

ABS: Rinit-loc(x_1) **Rinit-loc**

STM: Rinit-loc_wf

ABS: Rinit-T(x_1) **Rinit-T**

STM: Rinit-T_wf

ABS: Rinit-x(x_1) **Rinit-x**

STM: Rinit-x_wf

ABS: Rinit-v(x_1) **Rinit-v**

STM: Rinit-v_wf

ABS: Rframe?(x_1) **Rframe?**

STM: Rframe?_wf

ABS: Rframe-loc(x_1) **Rframe-loc**

STM: Rframe-loc_wf

ABS: Rframe-T(x_1) **Rframe-T**

STM: Rframe-T_wf

ABS: Rframe-x(x_1) **Rframe-x**

STM: Rframe-x_wf

ABS: Rframe-L(x_1) **Rframe-L**

STM: Rframe-L_wf

ABS: Rsframe?(x_1) **Rsframe?**

STM: Rsframe?_wf

ABS: Rsframe-lnk(x_1) **Rsframe-lnk**

STM: Rsframe-lnk_wf

ABS: Rsframe-tag(x_1) **Rsframe-tag**

STM: Rsframe-tag_wf

ABS: Rsframe-L(x_1) **Rsframe-L**

STM: Rsframe-L_wf

ABS: Reffect?(x_1) **Reffect?**

STM: Reffect?_wf

ABS: Reffect-loc(x_1) **Reffect-loc**

STM: Reffect-loc_wf

ABS: Reffect-ds(x_1) **Reffect-ds**

STM: Reffect-ds_wf

ABS: Reffect-knd(x_1) **Reffect-knd**

STM: Reffect-knd_wf

ABS: Reffect-T(x_1) **Reffect-T**

STM: Reffect-T_wf

ABS: Reffect-x(x_1) **Reffect-x**

STM: Reffect-x_wf

ABS: Reffect-f(x_1) **Reffect-f**

STM: Reffect-f_wf

ABS: Rsends?(x_1) **Rsends?**

STM: Rsends?_wf

ABS: Rsends-ds(x_1) **Rsends-ds**

STM: Rsends-ds_wf

ABS: Rsends-knd(x_1) **Rsends-knd**

STM: Rsends-knd_wf

ABS: Rsends-T(x_1) **Rsends-T**

STM: Rsends-T_wf

ABS: Rsends-l(x_1) **Rsends-l**

STM: Rsends-l_wf

ABS: Rsends-dt(x_1) **Rsends-dt**

STM: Rsends-dt_wf

ABS: Rsends-g(x_1) **Rsends-g**

STM: Rsends-g_wf

ABS: Rpre?(x_1) **Rpre?**

STM: Rpre?_wf

ABS: Rpre-loc(x_1) **Rpre-loc**

STM: Rpre-loc_wf

ABS: Rpre-ds(x_1) **Rpre-ds**

STM: Rpre-ds_wf

ABS: Rpre-a(x_1) **Rpre-a**

STM: Rpre-a_wf

ABS: Rpre-p(x_1) **Rpre-p**

STM: Rpre-p_wf

ABS: Rpre-P(x_1) **Rpre-P**

STM: Rpre-P_wf

ABS: Raframe?(x_1) **Raframe?**

STM: Raframe?_wf

ABS: Raframe-loc(x_1) **Raframe-loc**

STM: Raframe-loc_wf

ABS: Raframe-k(x_1) **Raframe-k**

STM: Raframe-k_wf

ABS: Raframe-L(x_1) **Raframe-L**

STM: Raframe-L_wf

ABS: Rbframe?(x_1) **Rbframe?**

STM: Rbframe?_wf

ABS: Rbframe-loc(x_1) **Rbframe-loc**

STM: Rbframe-loc_wf

ABS: Rbframe-k(x_1) **Rbframe-k**

STM: Rbframe-k_wf

ABS: Rbframe-L(x_1) **Rbframe-L**

STM: Rbframe-L_wf

ABS: Rrframe?(x_1) **Rrframe?**

STM: Rrframe?_wf

ABS: Rrframe-loc(x_1) **Rrframe-loc**

STM: Rrframe-loc_wf

ABS: Rrframe-x(x_1) **Rrframe-x**

STM: Rrframe-x_wf

ABS: Rrframe-L(x_1) **Rrframe-L**

STM: Rrframe-L_wf